



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**07.02.1996 Bulletin 1996/06**

(51) Int Cl.<sup>6</sup>: **F21V 35/00, G09F 9/307,**  
**G09F 9/30**

(21) Application number: **95202145.9**

(22) Date of filing: **07.08.1995**

(84) Designated Contracting States:  
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC**  
**NL PT SE**

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(30) Priority: **06.08.1994 GB 9415973**

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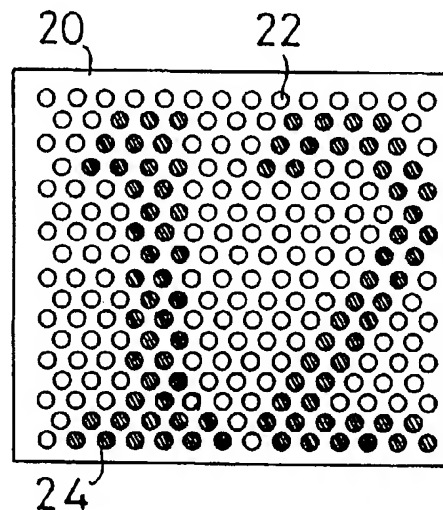
(54) **Display unit**

(57) The invention relates to a display unit, which can be selected alone or with others from a set of display units, for instance to provide an indication of a person's age on a birthday cake or the names of two persons on a wedding cake, or a greeting on an anniversary or a special day on another receiver surface.

The display may be by candles, in a special holder, though other illuminants could be used, including ones electrically powered, preferably by battery. The embodiments of the invention described for use with candles can alternatively or additionally be used with electrical and/or electronic illuminants, which can either provide continuous illumination or be flashing.

A holder for a candle or the like is taught which is stable than a candle; thus the holder can be wider but less high than the candle, and although preferably received and held in the surface or surface covering may alternatively simply rest on that surface or surface covering.

In an alternative embodiment, intended with the unit to be hung generally vertically, the illuminant e.g. candle, recesses can be formed by holders projecting from one surface, positioned and shaped so that the candles can be upright, yet without the flame from one impinging upon the holder for another; we foresee that such a unit could have utility for hanging in a window or porch way, to indicate special occasions. The holders can be permanently attached to the base, such as a base board, or removably but non-rotatably received therein, typically in pre-formed openings.



**FIG 3**

## Description

This invention relates to a display unit.

In a particularly advantageous arrangement the invention relates to a display unit which can be selected alone or with others from a set of display units, for instance to provide an indication of a person's age on a birthday cake or the names of two persons on a wedding cake, or a selected greeting on an anniversary or other special day on a cake or on another receiver surface.

The specification will be directed in particular to the use of candles, in a special holder, though other illuminants could be used, including ones electrically powered, preferably by battery, and the use of the wording "candles" is to be taken to include such other illuminants where appropriate. Thus it will be understood that the embodiments of the invention described for use with candles can alternatively or additionally be used with electrical and/or electronic illuminants, which can either provide continuous illumination or be flashing.

Unless otherwise stated the display unit will be described in relation to a cake on a horizontal surface, and reference to geometrical terms such as "above" and "below" will be to that assumed position of use.

If candles are to be mounted directly in a cake or the like, then the mounting area needs to be of a consistency to receive and yet hold the candles, which can dictate the cake covering or surface material the cook must use. Thus it is traditional to form the upper surfaces of a celebration cake, such as a birthday cake or a wedding cake, with a sugar-based "icing" or equivalent decorative covering of a consistency to receive and support a plurality of candles.

For celebration cakes conventionally the candles are pressed into the icing, before being lit using a match or other flame source such as a "gas lighter". To hold the candle in position the icing is pierced, which can detract from the appearance of a cake which is brought to the table after the candles have been extinguished and removed. A further disadvantage is that each candle making up a display, of for instance the child's age, needs for best effect to be positioned accurately and if one or more of the candles is initially misplaced, and then re-positioned, the icing has been damaged, detracting from the cake appearance; because of that damage it may not be possible to re-position the candle in the desired alignment with other candles. Another possible disadvantage is that it is usually only possible to light the candles after they have been inserted into the cake surface and so the child's age e.g. "7" is limited to a single line of candles, because of the difficulty of lighting candles which are not aligned. Any "greetings message" such as "Happy Birthday" written in coloured icing needs to be positioned away from the candles.

Traditionally, only "numbers" e.g. "7", are indicated by such burning candle displays, since usually only one but at most three numbers are required i.e. it is not normal for the candles to be arranged in an array indicating

the child's or person's name, even if the space available for finger manipulation of the candle positions permitted this.

A known problem is to prevent unsightly wax solidifying on the icing, in order to mitigate the risk that some children may be allergic to wax residue.

We now propose a display unit comprising a base, mounting means carried by the base, and a plurality of spaced illuminant-mounting recesses in the base.

Usefully, the unit is shaped as a number or letter, so that it can be used where necessary with one or more additional numbers or letters to form an outline of the person's age or name, to be highlighted when the illuminant or illuminants are lit; but in an alternative embodiment the unit can be of a standard shape, such as rectangular, with a particular combination of recesses to form selected numbers and/or letters within the rectangular background.

Usefully, the or each illuminant is a candle; usefully also the unit will have candle-receiving recesses in one surface, and retention projections forming the mounting means extending from the opposed surface. In one manner of use, the candles are positioned in the recesses, lit, and the unit positioned on the cake with the projections inserted into the icing or equivalent; in another manner of use the projections are blunt-ended and so rest on the cake (upper) surface without damaging that surface; an advantage of this latter arrangement is that the surface can be of a firmer material, perhaps a temporary non-cuttable covering, non-piercable by the unit legs. In a further manner of use, the candles can be positioned and/or lit after the unit has been positioned as desired. Thus a greater variety of cake coverings can be used, as well as a more accurate and thus acceptable display.

Alternatively, the or each illuminant is an electrically operated lamp, continuously or intermittently illuminating. The base can carry a battery and the switch, aligned with the mounting means i.e. below the display.

A holder for a candle or the like can be designed to be more stable than a candle; thus the holder will be wider but less high than the candle, and although the holder will preferably be received and held in the surface or surface covering it may alternatively simply rest on a substantially horizontal surface or surface covering.

In an alternative embodiment, intended with the unit to be hung generally vertically, the candle recesses can be formed by holders projecting from one surface, positioned and shaped so that the candles can be upright, yet without the flame from one impinging upon the holder for another; we foresee that such a unit could have utility for hanging in a window or porch way, to indicate special occasions. The holders can be permanently attached to the base, such as a base board, or removably but non-rotatably received therein, typically in pre-formed openings.

If a unit is for a single number e.g. "7", or letter e.g. "A", then we foresee that the unit would be part of a set supplied together e.g. "1-10" or "A-Z", from which the

user can then select the required combination e.g. "21" or "ALISON" respectively.

The invention will be further described, by way of example, with reference to the accompanying drawings, in which:-

- Fig. 1 is a front view of a first embodiment of display unit, representing the number "7";
- Fig. 2 is a view on the line II-II of Fig. 1;
- Fig. 3 is a front view of a second embodiment of display unit;
- Fig. 4 is a plan view of a cake, having a third embodiment of display unit on its upper surface;
- Fig. 5 is of a fourth embodiment of display unit;
- Fig. 6 is of a fifth embodiment of display unit;
- Fig. 7 is an enlarged view along the line VII-VII of Fig. 6;
- Fig. 8 is an enlarged view of part of the display unit of Fig. 6;
- Fig. 9 is of a sixth embodiment of display unit;
- Fig. 10 is an enlarged view along the line X-X of Fig. 9; and
- Fig. 11 is of a seventh embodiment of display unit.

The display unit 10 of Fig. 1 comprises a base plate or board 12 of a plastics material, selected from those suitable for contact with foodstuffs, and resistant to melting at candle-wax melt temperatures. A suitable base or board 12 material is polypropylene, which can be self-coloured and has good impact resistance; another suitable material is polyethylene, which also can be self-coloured and has good impact resistance though with a slightly lower melting temperature. Alternative materials are polycarbonate, or ABS nylon, both of which have higher melt temperature resistance than polypropylene and polyethylene.

The outline shape of base 12 is the figure "7". Within this outline shape of base 12 are a number of candle-receiving recesses 14, positioned and sized to receive candles which will in use outline also the number "7", acting in use to highlight the selected number against the base background. In an alternative embodiment, a different number can be outlined, or a letter of an alphabet, alone or in a selected combination.

In a further alternative arrangement, a particular outline shape of the base and candle array can be selected which is appropriate to the interest of the person being

celebrated, for instance a military medal, or the badge of an organisation.

The candle recesses 14 in this embodiment are arranged in pairs, side by side, to better highlight the number or letter. In an alternative embodiment more candles are arranged, side by side or closely so, such that they can be lit as by a hand-held match without the need to pass over a lit candle, to limit the likelihood that the hand or finger is burned by a previously-lit candle.

In use the base 12 acts to retain molten candle wax until it solidifies, to prevent the wax settling on the cake or other mounting surface.

In this embodiment, the unit includes mounting means in the form of prongs 16 (Fig. 2), which can be used to position and locate the unit within icing or an equivalent surface covering of a cake. In an alternative embodiment, such icing or equivalent need no longer be used, if the purpose for which it was provided was not for decoration but to support and locate the candles, since with embodiments of the invention for which prongs are provided, the prongs can locate directly in the cake.

In use, the candles can be positioned in the respective recesses, lit, and then placed on the cake; in an alternative method of use, the candles can be lit after the unit has been positioned.

In the alternative embodiment of Fig. 3, the single backing board 20 can have multiple candle recesses 22, from which the user is required to select the candle recesses required to form the candle array e.g. in this embodiment the recesses 24 (as shown hatched) are chosen for the age "12". An advantage of this arrangement is that one unit can allow the selection of several numbers/letters etc. and in various combinations.

In the alternative embodiment of Fig. 4, the unit 30 is shown upon a cake 32; the unit 30 has two arrays 34, 36 of candle-receiving recesses, forming individual numbers, in this case the numbers "1" and "2", aligned to form the child's age i.e. in this embodiment "12". Thus there will be one such display unit for each child's age. The base or board 38 in this embodiment is of a common shape for ease of assembly and storage, with the selected recess pattern formed therein.

In the embodiment of Fig. 5, instead of recesses in the surface, candle holders 40 project from the surface of the board 42, so that the candles may be aligned substantially parallel to the surface rather than perpendicular thereto. Thus, this unit is adapted for hanging on a peg or the like, usually on a wall to continue burning in view whilst the party progresses e.g. the cake is being consumed, or perhaps in a house window or behind a glazed door, alerting passers-by to the celebration. The unit, in this embodiment the letter "H", will typically be hung alongside other boards in the shape of letters, so to spell a word such as a name. An advantage of this arrangement, as with those above, is that a source of electrical power is not required; another is that failure of one candle to remain lit does not automatically extinguish the lighting

from the others, as happens with decorative electric lights wired in series. However the unit can be electrically powered, for continuous or intermittent illumination.

Units similar to the unit of Fig.5, but of different shapes, could also be provided. For example, a unit in the form of a horseshoe, adapted to upstand from the surface of a cake, could be provided.

In the embodiment of Fig.6 the numeral "7" is displayed using a single set of candle-receiving recesses 64 within a base board 62.

The recesses 64 typically will have an open end of diameter in the range 4-5mm, but this will depend on the diameters of suitable candles locally available; in this embodiment the open ends of the recesses are each 4.5mm in diameter. The recesses have a depth of in the range 3-5mm, in this embodiment of 3.5mm, with a small draft, in the range 5-15°, in this embodiment of 5°.

As best seen in Figs.7 and 8 the candle-receiving recesses are frusto-conical and single-ended, having a closed (lower) end of smaller diameter than the (upper) open end. The recesses include four ribs or radial projections 65 equi-angularly spaced, extending from the open end of each recess 64 (to the bottom as viewed in Fig.7). The ribs 65 in this embodiment have zero draft. An advantage of this ribbed recess arrangement is that a candle can be held more securely (against tilting) even in a small depth candle recess, with part of the candle wax being extruded between the ribs as the candle is pressed into a recess. The likelihood of a lighted candle tilting is reduced, so that the attractive display (of equi-spaced parallel candles) retained as the candles burn.

The recesses 64 are formed in base 63 of base board 62. An upstanding lip 66 is provided along the edges of base 63 whereby to form an outer wall of a reservoir in which melted candle wax can be retained until it solidifies, and perhaps re-used. The mounting means is in the form of support legs 67 each of which in this embodiment has a blunt foot 68 which projects beyond the recesses 64 and which can rest upon or pierce (as desired) the icing or other cake surface such that the recesses 64 are out of contact with the icing, to allow an air coolant gap between the icing and the floor 69 of the recess, specifically between the cake or other surface and the recesses 64.

The lip 66 will typically project beyond the base 63 in the range 1.2-1.8mm, in this embodiment by 1.5mm; and the feet 68 will project in the other direction beyond the floor 69 of the recess in the range 0.7-1.3mm, in this embodiment by 1mm with a floor thickness of 2mm.

The base board 62 carries spaced pegs 70, in this embodiment three pegs, one at each extremity and one at the junction of the horizontal and upwardly angled sections (as viewed in Fig.6) of this number, and which project beyond the feet 68. The pegs 70 are intended to be used to locate the number in the cake surface, suitably an inclined cake surface, with the feet 68 resting against the cake surface. The pegs will typically extend

beyond the feet 68 in the range 3.5-4.5mm, in this embodiment by 4mm, and will have blunt ends. In an alternative embodiment suitable for use on horizontal or near horizontal surfaces which are not to be damaged before cutting, the pegs 70 are omitted, so that the unit rests on the feet 68.

In a preferred embodiment each number is integrally formed as by being individually moulded from a plastics material, but linear numbers ("1") can be extruded (with the extrusion then cut to lengths), as can numbers with linear sections such as "7"; the extrusion is cut to lengths which are thereafter joined together, with the candle recesses perhaps formed subsequently. The numbers can be of a self-coloured material e.g. pink or blue as traditionally used respectively for girls and boys.

Figs.9 shows an alternative display unit 90, of oval form, and as shown in Fig.10 with candle recesses 91 and upstanding wax-retaining walls 92. In this embodiment the unit section as shown in Fig.10 is similar to the section of the Fig.7 embodiment, having a height similar to its width (or diameter) and thus generally stable as compared to the candle to be inserted (of an initial height several times that of its width or diameter). In an alternative embodiment the feet 93 will project further, and in yet a further embodiment the annular outer foot will project even further than the annular inner foot, in both cases so that the display unit 90 can be positioned on a convex surface such as the crown of an iced cake, with the feet lying upon, or being inserted into, the cake surface with the walls 92 in a horizontal plane.

In the embodiment of Fig.11, the space inside the oval 110 is partly filled with a section 117 which carries greetings message, such as "Happy Christmas", "Happy Birthday", "Happy Thanksgiving" etc., perhaps in pink or blue as above if for a special individual, or of another selected colour for special occasions e.g. gold for "Happy Anniversary", or of brown or yellow for "Happy Easter". The greetings message will be formed as part of the moulding; it will not usually have candle recesses, which recesses 11 will preferably have candle recesses, which recesses 11 will preferably will be around the oval 110 allowing ease of access.

In an alternative embodiment a display unit such as the display unit 110 of Fig.11 carries a plurality of small lamps 111, electrically operated; in an alternative embodiment the recesses 111 each have an optical fibre, at these positions illuminated by a single lamp. The battery holder 115 and the switch 116 are supported adjacent the section 117 and are adapted to be accessible only before or after the display unit has been positioned on the (cake) surface, being generally below the greetings message so as to be less easily observed, with the feet 93 being of a length to hold them away from (out of contact with) the cake or equivalent surface.

In an alternative embodiment the battery holder and switch are beneath the section 117 as viewed, and may be shaped to form part of the greetings decoration seen when the unit is mounted on a cake. In a particularly ad-

vantageous embodiment, the battery can be located in a housing of selected shape e.g. a heart, to be connected to the base or integral therewith, the shaped (and coloured) housing being visible in use so as to add to the "greetings" message.

In this embodiment the section 117, battery holder 115 and switch 116 are removably mounted within the oval on arms 118. Thus, the particular display section 117, and the battery holder and switch attached thereto, may be made separately from the oval, and the same oval can be used successively for different greeting messages.

The wiring between the switch 116 and battery holder 115 can be secured to the internal face of the inner oval-shaped leg, so as to be out of sight and spaced from the cake or other unit-receiving surface; but in an alternative embodiment can be an electrically conductive strip heat sealed to or sputtered onto the leg.

In a preferred embodiment the battery holder includes a circuit to provide timed illumination of the lamp, whereby to provide an intermittent or flashing greetings message (lamp or optical fibre), of potentially greater impact and providing greater pleasure.

For selected embodiments, electrical storage batteries are commercially available of a sufficiently small size but with an output sufficient to power several small lamps; the base of the unit (Fig.1, Fig.3, Fig.4, Fig.5, Fig.6) will in this embodiment preferably be hollow or recessed, to provide a pocket in which the battery can be received and concealed, but alternatively the battery can be removably clipped to an external surface of the base.

In another embodiment, one of the recesses 111 holds a photoelectric cell responsive to incoming light. The photoelectric cell is part of an electrical circuit arranged to switch on a lamp in each of the remaining recesses 111 as soon as sufficient light (either daylight or artificial light) is incident upon the cell. The photoelectric cell may be covered by opaque sales packaging so that the lamps are lit upon removal from the packaging, or alternatively an opaque tab may be replaceably secured over the cell so that the lamps may be lit as and when desired by removal of the tab, the tab being replaced when illumination of the lamps is not desired.

Although the display unit of the invention is likely to find its greatest utility on cakes and the like, we do not exclude its use "on" other items such as greetings cards, or "in" such items i.e. if a battery powered display unit is carried by the card, for flashing or constant illumination, the battery can be energised upon the card being opened, the act of card opening operating the switch.

The battery will be selected to be of sufficient capacity to power the display unit for several occasions, both as a pleasurable reminder to the recipient when the card is next inspected, and to enable potential customers to evaluate the card before purchase (or to evaluate a specimen card if as we propose the card is pre-wrapped for sale, for the protection of the display unit, of its circuitry and of the battery).

The above-mentioned greetings cards can additionally or alternatively provide a space for an add-on message specific to the intended recipient. One such simple message is the recipient's age, indicated by a "peeled-off" adhesive backed number (or combination of numbers). Thus the shopkeeper need only keep a range of different designs; usefully the seller may be able to stock a wider range of designs, since it will not be necessary with such greetings cards to stock multiples of each design, one for each message.

## Claims

1. A display unit (10,20,30,90,110) comprising a base (12,42,62), mounting means (16,68,70,93) carried by the base, and a plurality of spaced illuminant-mounting recesses (14,24,40,64,91,111) carried by the base.
2. A display unit according to claim 1 in which the unit is shaped as one of a number and letter.
3. A display unit according to claim 1 in which a plurality of recesses are positioned to permit the person's age to be highlighted when each illuminant is lit.
4. A display unit according to Claim 1 in which the unit has candle-receiving recesses in one surface, and retention projections (16,70) forming the mounting means extending from the opposed surface.
5. A display unit according to Claim 1 in which the unit is free standing, with the mounting means comprising spaced legs (68,93) extending from the base by a distance such that a coolant gap exists below the base.
6. A display unit according to claim 1 in which the recesses are frusto-conical and single-ended, with a closed end (69) of smaller diameter than the open end, and include inwardly directed ribs (65) of zero draft.
7. A unit according to claim 1 in which each illuminant recess is shaped to receive an electrically operated lamp.
8. A unit according to claim 7 in which the unit has means for energising each lamp intermittently.
9. A unit according to claim 7 in which the base has means to carry a removable battery and the switch, the battery and switch being aligned with the mounting means and so below the display.
10. A method of using a display unit according to claim 1 which includes the steps of positioning candles in

the recesses, lighting the candles, and positioning the unit on a surface-iced cake (32) with the mounting means inserted into the icing.

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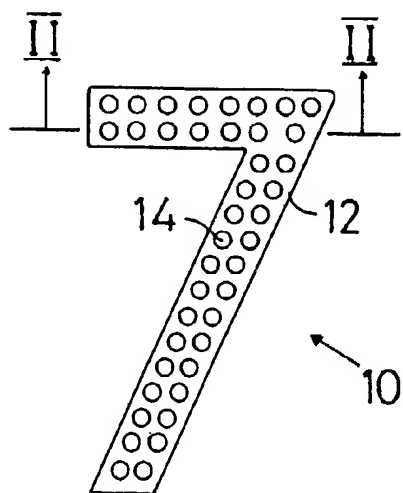


FIG 1

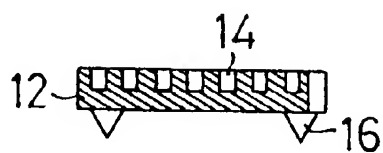


FIG 2

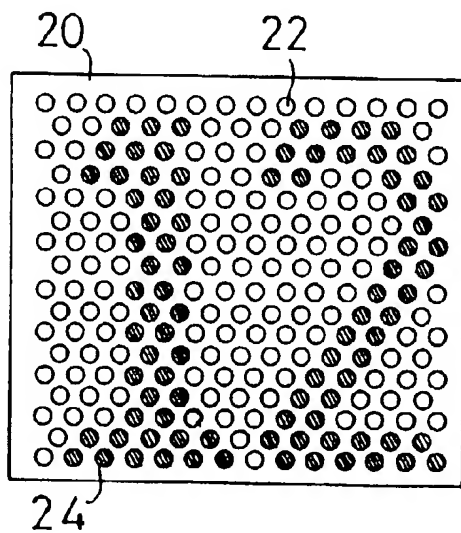


FIG 3

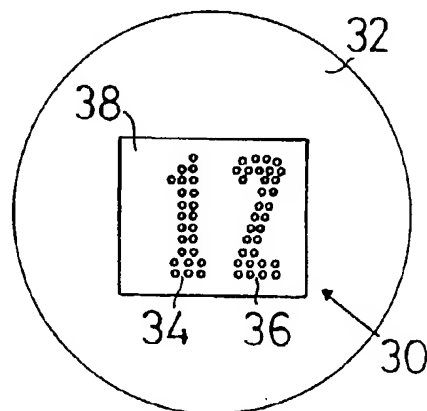


FIG 4

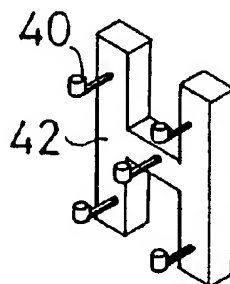


FIG 5

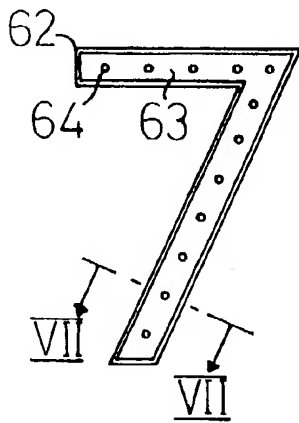


FIG 6

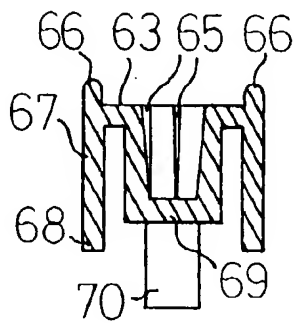


FIG 7

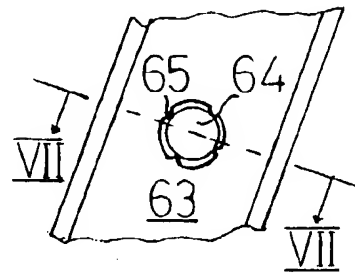


FIG 8

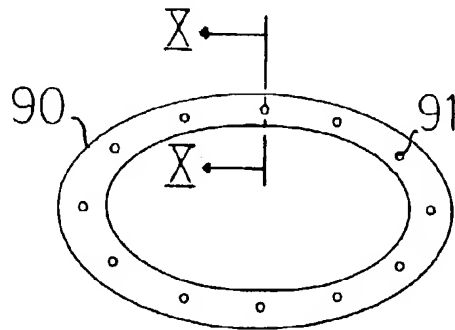


FIG 9

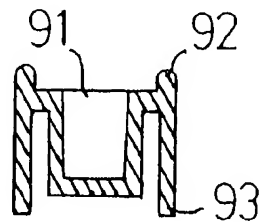


FIG 10

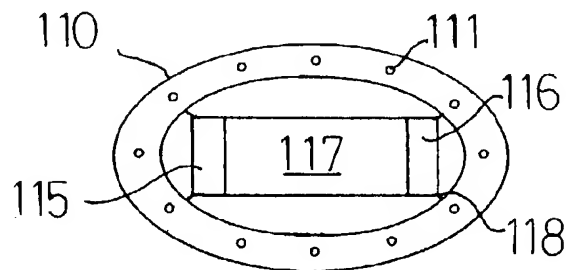


FIG 11





European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 95 20 2145

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X A	US-A-4 938 688 (WEXLER ETHEL) 3 July 1990 * column 2, line 42 - column 3, line 19; figures 1-5 * ---	1-4, 10 5, 6	F21V35/00 G09F9/307 G09F9/30
X	US-A-4 884 966 (WEXLER ETHEL) 5 December 1989 * column 3, line 32 - line 55 * ---	1-4, 10	
X	US-A-3 570 158 (HACKETT GEORGE RICHARD) 16 March 1971 * column 3, line 31 - line 70; figures 1-3 * -----	1, 7-9	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G09F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 November 1995	Examiner Hulne, S
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons ..... &amp; : member of the same patent family, corresponding document</p>			

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